



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/625,272 | 07/23/2003 | Kazuya Tsujimichi | 628365009035 | 8414 |

7590

09/20/2006

Stephen D. Scanlon
North Point
901 Lakeside Avenue
Cleveland, OH 44114

EXAMINER

JOHNSON, EDWARD M

ART UNIT

PAPER NUMBER

1754

DATE MAILED: 09/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/625,272

Applicant(s)

TSUJIMICHI ET AL.

Examiner

Edward M. Johnson

Art Unit

1754

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 53-66 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 53-66 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☒ Certified copies of the priority documents have been received in Application No. 09/380,946.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Al₂O₃ in component (ii) and SiO₂ in component (iii) in the reply filed on 8/31/06 is acknowledged.

Priority

2. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copies have been filed in parent Application No. 09/380,946, filed on 9/9/1999. ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 57-58 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 57-58, "the component (iv)" lacks antecedent basis.

Claim 57, "the oxidative degradation activity" lacks antecedent basis.

Claim Rejections - 35 USC § 102

Art Unit: 1754

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 53- rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Komatsu et al. US 5,854,708.

Regarding claim 53, Komatsu '708 discloses an anti-fog method comprising contacting air with a material comprising a glass substrate and a photocatalyst film (see abstract and column 2, lines 25-32) wherein the film comprises inorganic oxides such as Al_2O_3 and SiO_2 and has a hydrophilic property (see column 2, lines 33-35) and TiO_2 , which is excited by light. The method of Komatsu would inherently clean air because Komatsu discloses that NO_x in the air is deposited in the openings of the disclosed composition and dissolved and removed (column 2, lines 25-32), which would clean air by removing NO_x therefrom, as disclosed.

Art Unit: 1754

When the examiner has reason to believe that the functional language asserted to be critical for establishing novelty in claimed subject matter may in fact be an inherent characteristic of the prior art, the burden of proof is shifted to Applicant to prove that the subject matter shown in the prior art does not possess the characteristics relied upon. In re Fitzgerald et al. 205 USPQ 594.

Regarding claims 54, 59, Komatsu '708 discloses the same thickness amount of titanium oxide and inorganic oxide (see column 4, lines 50-55), which would result in $a/(a+b)$ value of 0.5.

Regarding claim 56, Komatsu '708 discloses ZnO and ZnS (see column 2, lines 40-41), silver and copper (Example 2).

Regarding claims 57-58 and 66, Komatsu '708 discloses Cr and Al (see Examples).

Regarding claim 60, Komatsu '708 discloses a 2000 angstrom film thickness (see column 2, lines 65-67).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at

Art Unit: 1754

the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 55, 59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Komatsu '708.

Komatsu fails to disclose particles having a diameter of 0.005 to 0.5 microns.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use particles having a diameter of 0.005 to 0.5 microns in the photocatalyst of Komatsu because Komatsu discloses a film thickness of about 1000 angstroms, which would motivate an ordinarily skilled artisan to use particles of about that diameter to create a film of particles having the disclosed thickness.

Regarding claim 59, Komatsu discloses an embodiment comprising titania of 2000 angstrom thickness and inorganic oxide film of 150 angstroms, which would motivate an ordinary artisan to use an optimum ratio of titania and Al including 0.00001-0.05 arrived at through routine experimentation.

Regarding claims 61-64, Komatsu '708 discloses a film of SiO_2 , which is Applicant's preferred binder, on rectangular substrates (see Figures), which would motivate an ordinary artisan to form a glaze or paint on a tile to make the film to be exposed to light, as disclosed.

Regarding claim 65, Komatsu '708 discloses a glass substrate, which would at least suggest calcium silicate glass to an artisan of ordinary skill.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Fujii US 6,620,385 discloses a method for purifying air comprising contacting with irradiating a photocatalyst with light (see abstract and Examples); Hayakawa et al. US 6,013,372 discloses a method for treatment of NO_x comprising irradiating a photocatalyst (see abstract and Examples).


10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edward M. Johnson whose telephone number is 571-272-1352. The examiner can normally be reached on M-F 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley S. Silverman can be reached on 571-272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval

Art Unit: 1754

(PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Edward M. Johnson
Primary Examiner
Art Unit 1754

EMJ